REMARKS

The Office Action was mailed in the present case on June 27, 2005, making a response due on or before September 27, 2005. This Response is being submitted, along with a Petition For Extension of Time Within the Second Month, and the required extension fee. If any additional fee is due for the continued prosecution of this application, please charge the same to Applicant's Deposit Account No. 50-2555 (Whitaker, Chalk, Swindle & Sawyer, LLP).

Applicant appreciates the Examiner's indication that the formal Drawings submitted on April 4, 2005, are accepted.

Claims 1-9 were pending in the application. The Examiner has rejected Applicant's Claim 9 as being indefinite under 35 U.S.C. §112. Claim 9 has been canceled in this response, thereby mooting that ground of rejection.

The Examiner has substantively rejected Applicant's Claims 1 and 5-9 under 35 U.S.C. §102(b) based upon the reference to Girard (3,605,159). Claims 1 and 3-9 have also been rejected under 35 U.S.C. §102(b) based upon the reference to Forry (6,093,467). Claims 1, 2 and 4-7 have been rejected under 35 U.S.C. §102(b) as being anticipated by Shtarkman (5,176,368).

The Examiner has rejected Applicant's Claim 2 under 35 U.S.C. §103(a) as being "obvious" based upon either Girard or Forry in the alternative.

Applicant has amended the remaining claims in view of the Examiner's remarks, and reconsideration of remaining Claims 1 and 3-8 is requested in view of the remarks which follow.

Applicant's invention involves the discovery that a particular class of synthetic polyurethane coatings can be used successfully to provide oil field elastomers which are able to better withstand the rigorous nature of a downhole well environment. The typical downhole well environment subjects

foreign objects to extremes of temperature and pressure, as well as the presence of various corrosive influences, such as hydrogen sulfide gas. Where elastomeric elements are used in such environments, it is generally necessary to utilize the commercial available "exotic" rubber and plastic formulations which are heat, temperature and oil resistant in addition to being resistant to the other deleterious influences in the well environment, such as hydrogen sulfide. The "exotic" rubber and plastic type formulations are well familiar to those skilled in the oil field arts and include, for example, VITON®, RYTON® and the like.

While these "exotic" resilient elastomeric materials have been used successfully for many years in the oil field industry, they add considerably to the cost of the elastomeric element being employed, whether it be a resilient diaphragm for a drill bit, a resilient element of an oil field packer, a resilient element of a liner wiper plug, a component of a cementing shoe, or the like. It would be advantageous economically to be able to supply these types of elastomeric elements formed of a traditional elastomer which elastomer has been "treated" in some way to render it more impervious to the downhole well environment.

Applicant's discovery is that the particular class of polyurethane coatings being claimed can be used successfully in the environment described. The particular preferred class of coatings is described in detail in the Specification as originally filed, beginning at about page 9, line 22, et seq. Applicant has amended Claim 1, the only remaining independent claim, to specifically direct the claim to the Lord CHEMGLAZE® type coating by including the published specification language for the product in the claim language.

Claim 1 has been further amended to better define the specific field of the invention and to distinguish other types of applications where elastomeric rubber coatings have been utilized in the past, such as the automotive industry. Applicant does not dispute that synthetic polyurethane type coatings have been used in the past, for example on automotive engine mounts or as tire coatings, but such use, it is submitted, is not equivalent to the use of the claimed compositions in the downhole well environment.

Claim 1, in addition to including the published specifications for the preferred class of polyurethane coatings, now describes the invention in terms of a coating:

"which is applied to the exterior surface of the elastomeric body is capable of withstanding downhole well environments including high temperature and high pressure steam, high temperature and corrosive produced fluids and the presence of saltwater, the outer coating serving to encapsulate and protect the inner sealing element body while providing anti-friction and anti-corrosive properties which protect the elastomeric sealing element body from physical abrasion and wear in use, thereby allowing the use of more traditional elastomers for the sealing element body without having to resort to more exotic materials."

Support for the amended claim language can be found in the Specification as originally filed beginning at page 11, lines 17-29, et seq.

The Girard reference cited by the Examiner nowhere teaches the particular type of synthetic polyurethane coating presently claimed by Applicant in the amended claims. Further, Girard teaches that a "barrier layer or cover portion 12" (Col. 3, lines37-38) can be positioned "to close the end of the body" of a pipeline pig. Note that the "covering" can take the form of a "spiral strip 14 of suitable plastic material, leaving a spiral opening 16 between the turns of the strip" (Col. 3, lines 47-49). Such a spiral strip would not accomplish Applicant's objectives of providing a "polyurethane surface coating applied to all exposed portions of the exterior surface of the elastomeric body" as called for in amended Claim 1.

The Forry reference describes a sealing gasket having two opposed faces and an edge disposed therebetween which is given "a wide coating on the edge" (Abstract). Again, the coating is not applied to "all exposed portions of the exterior surface of the elastomeric body", as claimed by Applicant. Further, the Forry gasket is an engine gasket used in an automotive engine application. Forry catalogues a long list of "inorganic materials" which apparently make suitable candidates for his coating materials:

"Inorganic materials which can be used as a coating includes chemically delaminated vermiculite and mica coatings. Preferred coatings are polymers. The polymer coatings can be used to form either coating A, coating B, and/or coating C. Polymer coatings include organic, inorganic, inorganic/organic hybrid polymers as well as filled polymers. Suitably the polymer coating materials are coatings selected from the group consisting of acrylic, acrylonitrile, polyvinylidene chloride, fluorosilicone, polyurethane, acrylonitrile butadiene rubber (NBR), fluoro polymers, hydrogenated NBR, silicone rubber coatings (both UV curable and room temperature curable), styrene butadiene polymer, fluoroelastomer polymer, fluorosilicone polymer, acrylic-acrylonitrile polymer, carboxylated acrylonitrile polymer, carboxylated styrene butadiene polymer, chloroprene rubber polymer, ethylene propylene rubber polymer, ethylene/vinyl acetate, epoxy, and mixtures thereof can be used. Any latex can be used. Also suitable as a coating are polymer powders which are heated to melt them onto the surface of the gasket. In fact, any powder which can be fused can be used to seal and coat the gasket. Coatings A, B, and C can be made by different coatings or they can be the same material. "

Forry's laundry list of materials does not specifically call out Applicant's preferred class of coatings. Obviously, Forry's teaching is directed to the specific placement of any one of a large grouping of synthetic coatings on an automotive engine gasket. He isn't particularly concerned with the particular type of coating being employed, just its placement on the object. As such, he fails to teach Applicant's invention.

The Shtarkman reference is the only reference located by the Examiner which teaches the use of one of the Lord Chemglaze family of coating products. The reference does not include the Manufacturer's Technical Data description of the coating. Further, the Shtarkman reference is a "vehicle engine mount" which has been treated with a "Chemglaze A202" coating (Col. 4, lines15-23). There is no suggestion in the reference that a coating for a "vehicle mount" which is applied to protect the membrane from absorbing oil (Col. 4, line 18) would be acceptable for Applicant's claimed products.

The environment of an automobile engine compartment can not be said to be the same as or similar to a downhole well environment. Further, even if the A202 coating is successful in preventing oil absorption, there is no reason to suppose it would also function as claimed by Applicant, in amended Claim 1, in "withstanding downhole well environments including high temperature and high pressure steam, high temperature and corrosive produced fluids and the presence of saltwater, the outer coating serving to encapsulate and protect the inner sealing element body while providing anti-friction and anti-corrosive properties which protect the elastomeric sealing element body from physical abrasion and wear in use, thereby allowing the use of more traditional elastomers for the sealing element body without having to resort to more exotic materials." Further, Shtarkman nowhere suggests that the coated engine mount could be manufactured more economically by using a less expensive rubber for the sealing element body and coating the body with Applicant's claimed coating composition.

Reconsideration of remaining Claims 1 and 3-8 is requested in view of the above arguments.

Respectfully submitted,

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